
Intravenous Drug Users and the Acquired Immune Deficiency Syndrome

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Synopsis

Acquired immune deficiency syndrome (AIDS), a new epidemic disease characterized by dysfunction of cellular immunity, is most common among homosexual and bisexual males with multiple sexual partners and users of intravenous drugs. AIDS appears to be spread by contact with blood products and body fluids. Not only is the heroin user at increased risk of contracting AIDS, but also the occasional recreational drug user who shares a needle and syringe when he or she self-administers cocaine or amphetamines at a party on a weekend.

Although precise figures are not available, there may be as many as several million recreational and regular users of cocaine and heroin. Data from a national sample of drug abuse treatment programs indicates that more than 80 percent of all clients seeking treatment, whatever their primary drug of abuse at the time of admission to treatment, have administered drugs to themselves intravenously during the year before treatment.

Several hundred thousand treatment episodes occur each year. Data from surveys indicate that drug users entering treatment are well aware of the increased risks associated with AIDS. It is not surprising that treatment staff, also, have expressed concerns about their own susceptibility to the disease. Special education programs for these health workers have been instituted in New York City and have met with success. These programs have provided information and reassurance to treatment providers. At present, no health worker providing direct treatment service to drug abusers with a history of intravenous drug use has contracted AIDS.

NO SINGLE DISEASE OR MEDICAL CONDITION seems to have evoked as much interest and concern from the health care community and the information media as acquired immune deficiency syndrome (AIDS), a new epidemic disease characterized by dysfunction of cellular immunity.

Despite widespread alarm, this immunodeficiency syndrome does not uniformly attack the general population. Initial reports (1,2,3) indicated that homosexual and bisexual males with multiple sexual partners and the users of illicit intravenous drugs were particularly at risk. More recently, additional risk groups have been identified and defined: recent Haitian immigrants to the United States (4), hemophiliacs receiving factor VIII concentrate (5), and "others," including recipients of multiple blood transfusions (6) and steady sexual partners of persons with AIDS (7). There has been much controversy over reports that AIDS has appeared at higher than expected rates among prison inmates (8) and infants in households where other high-risk individuals reside (9).

This paper focuses on drug users who may be most at risk for AIDS, the concerns of drug users about AIDS, and the concerns of their treatment service providers. Techniques are described that can be employed to educate both drug users and their health care providers.

The term "drug user" or "drug abuser" refers to any person who uses psychoactive substances in a manner that does not constitute an approved medical intervention prescribed by a health professional. This definition applies to misadventures with legally prescribed medications as well as to the use of illicit substances. The term "intravenous drug user" refers to a person who voluntarily injects psychoactive substances directly into his or her blood circulation.

Although intravenous drug users have been recognized as a unique "at risk" group, they have not attracted as much media attention as the homosexual, Haitian, or hemophiliac groups. Each of these groups has constituencies that can direct attention to their plight.

Drug abusers in general, and intravenous drug users in particular, have no organized advocacy. On the contrary, these groups have been identified as reservoirs of medical problems (such as serum hepatitis) and social ills. Drug abusers are traditionally associated with self-destructive activities; high rates of unemployment and criminality among abusers are frequently reported. Despite these apparent similarities, drug abusers are an extremely heterogeneous group. They display no common type of social, economic, or political behavior that distinguishes them from the general population.

Although they prefer to remain anonymous, drug abusers are generally identified in one of two circumstances: as they seek treatment or when they are arrested. Thus, the drug abuse treatment community and the criminal justice system have traditionally been the primary sources of information on persons with serious drug abuse problems (10,11).

Many drug abusers are not regular abusers (12) nor are they readily identified by either of these systems. Treatment for drug-related problems may be provided by the general medical care delivery system without the patient's ever being labeled a drug abuser. Drug abusers frequently present with clinical signs of depression or other psychiatric illnesses (13) and these, rather than the substance abuse behavior, may be the reported clinical diagnoses. Most importantly, many persons abuse and misuse drugs and never receive any therapeutic intervention.

As a rule, the general medical community has preferred not to treat either the social or the medical ills of drug abusers. Instead, society relies upon the substance abuse treatment community, predominantly a non-medically oriented treatment system, to provide services for drug users.

Because the drug-abusing community is poorly defined and services to it are typically provided by a potpourri of resources, containment of AIDS among this group becomes a serious public health issue.

Epidemiology of AIDS among Drug Users

The hierarchical presentation of AIDS data by the Centers for Disease Control (CDC) places a person with more than a single risk factor in the most prevalent risk group. For example, according to the CDC method, a drug-abusing homosexual is classified solely as a homo-

sexual. Assignment of cases to risk groups in this manner has limitations; notably, the size differences between risk groups are exaggerated. Not only are the data misleading because they force each case into one category without regard to the separate risks of, say, homosexual intercourse or intravenous drug use, but this is compounded by using absolute prevalence rather than relative prevalence. That is, if denominator data were developed for homosexuals and intravenous drug users in the geographic areas where AIDS is prevalent, it would probably show that intravenous drug abusers are at substantially higher risk for AIDS than homosexuals.

The limitations are noted in table 1, which presents data on homosexuals, bisexuals, and intravenous drug abusers among the first 2,000 reported cases of AIDS, arranged according to the standard CDC method and in an alternative, nonhierarchical presentation. The effect of overlapping categories is evident. When sexual preference is disregarded, intravenous drug abusers represent more than one-quarter of all AIDS cases. One-third of persons with a history of intravenous drug use are homosexual or bisexual, but only 12 percent of homosexuals or bisexuals have a history of intravenous drug use. This subgroup of homosexuals or bisexuals who abuse drugs may be an "ultra high risk" category, and further study may be required to determine if the other risk factors are more likely to predispose this group to AIDS than they are to affect homosexuals or bisexuals who do not self-administer drugs intravenously.

Patterns of illicit drug use among intravenous and nonintravenous drug users who enter treatment programs have been well documented (10,14,15). There are much more limited data on intravenous drug users who do not seek treatment (16,17). Data from the Treatment Outcome Prospective Study (TOPS), a large-scale longitudinal study supported by the National Institute on Drug

Table 1. Impact of CDC's hierarchical presentation of data on homosexuals or bisexuals and intravenous drug users among the first 2,000 AIDS cases

<i>Standard CDC presentation</i>			<i>Nonhierarchical presentation</i>		
<i>Category</i>	<i>Number</i>	<i>Percent</i>	<i>Category</i>	<i>Number</i>	<i>Percent</i>
Homosexual or bisexual	1,407	70.4	Homosexual or bisexual	1,224	61.2
Heterosexual intravenous drug users	338	16.9	Homosexual or bisexual intravenous drug users	175	8.8
			Heterosexual intravenous drug users	338	16.9
			Total number of intravenous drug users, independent of sexual preference	513	25.7

NOTE: Definition of the group of homosexual or bisexual intravenous drug users in the nonhierarchical presentation has two beneficial results. First, an ultra-high-risk

group is identified. Second, it now appears that intravenous drug use is a risk factor in one-quarter of the cases, while homosexuality is a risk factor in 7 of 10 cases.

Abuse, are presented here as representative of the subpopulation of drug users who enter treatment. This data base has been determined to be representative of the national census of admissions to all drug abuse treatment

Table 2. Demographic characteristics of TOPS clients who self-administered their drugs intravenously in the year before they entered treatment

Characteristic	Number	Percent
Age		
Under 16	14	0.2
16-18	140	1.6
19-21	641	7.3
22-25	1,840	20.9
26-30	3,065	34.8
31-35	1,719	19.5
36-40	681	7.7
41-45	351	4.0
Over 45	344	3.9
Total	8,795	99.9
Sex		
Male	6,397	72.6
Female	2,411	27.4
Total	8,808	100.0
Race		
Caucasian	3,956	44.9
Black	3,512	39.9
Hispanic	1,256	14.3
Other	83	0.9
Total	8,807	100.0
Treatment modality		
Methadone detoxification	1,017	11.5
Methadone maintenance	3,907	44.4
Outpatient drug free	1,299	14.7
Therapeutic communities	2,176	24.7
Unassigned or never entered treatment	410	4.7
Total	8,809	100.0

¹ Sample size may vary slightly because of incomplete data collection forms.

² Does not add to 100.0 because of rounding.

Table 3. Characteristics of TOPS clients self-administering their drugs intravenously—drug use pattern in the year before entry into treatment

Pattern	Number	Percent
Both heroin and narcotics	1,406	16.0
Heroin	3,727	42.3
Narcotics except heroin	1,068	12.1
Multiple nonnarcotics	455	5.2
Single nonnarcotic	762	8.7
Alcohol or marijuana	949	10.7
Minimal drug use	442	5.0
Total	8,809	100.0

programs in the United States (18). The demographic characteristics of TOPS clients and AIDS patients with a history of illicit intravenous drug use, however, are not identical. Slightly more than one-quarter of the TOPS clients reporting intravenous drug use are women (table 2), while only 7 percent of all AIDS victims are women. Ninety percent of AIDS victims are between the ages of 20 and 49 years, with half being between the ages of 30 and 39; approximately one-quarter of the TOPS clients reporting intravenous drug use are between the ages of 30 and 39 (table 2).

TOPS is based on three annual cohorts (1979, 1980, and 1981) of clients admitted to more than 40 drug abuse treatment programs throughout the country (14,15). These clients were interviewed on admission to treatment and reinterviewed periodically while they remained in treatment. A stratified random sample of all clients was interviewed at 90 days, 1 year, and 2 years posttreatment to determine the relative effectiveness of their treatment experiences.

The demographic characteristics of TOPS clients entering drug abuse treatment programs during calendar years 1979, 1980, and 1981 are presented in table 2. The most striking observation is that a minimum of three-quarters (8,809) of the 11,623 clients participating in the TOPS study self-administered intravenous drugs in the year before they entered treatment. The median age of these clients was 28 years, and approximately three-fourths were men. Although caucasians constitute about 74 percent of the total population of the United States, they constituted only 45 percent of the intravenous drug users among TOPS clients. Blacks, who make up approximately 13 percent of the nation's population, constituted nearly 40 percent of the intravenous drug users, and Hispanics, who form approximately 13 percent of the nation's population, constituted approximately 14 percent. The racial distribution among AIDS victims reporting illicit intravenous drug use is similar.

TOPS examined drug use patterns in a hierarchical manner. The classification presented in table 3 is the result of a cluster analysis. In order to be classified within a given group, a client had to indicate that he or she had used the drug or group of drugs in question at least weekly during the entire year before entering treatment. Periods of incarceration were considered "no opportunity periods" and were discounted despite frequent reports of the relative accessibility of drugs within detention facilities.

Heroin and narcotics, together and separately, were the drugs used by 70 percent of all who reported using intravenous drugs during the year before beginning treatment. However, persons who had a minimal drug use pattern (those who did not use even alcohol or marijuana at least weekly), or persons who acknowledged using

Table 4. Route of administration of heroin, cocaine, and amphetamines for 11,623 TOPS clients during the year before their admission to a drug abuse treatment program

Route	Heroin		Cocaine		Amphetamines	
	Number	Percent	Number	Percent	Number	Percent
Oral	39	0.3	69	0.6	4,570	39.6
Smoke	48	0.4	55	0.5	2	0.0
Snort	725	6.2	4,475	38.8	163	1.4
Inject:						
Intravenous	7,902	68.0	5,236	45.4	2,391	20.7
Intramuscular	120	1.0	46	0.4	47	0.4
Other	1	0.0	2	0.0	1	0.0
Never used	2,788	24.0	1,657	14.4	4,362	37.8
Total	¹ 11,623	² 99.9	¹ 11,540	² 100.1	¹ 11,536	² 99.9

¹ Sample size may vary slightly because of incomplete data collection forms.
² Percentages do not add to 100.0 because of rounding.

only alcohol or marijuana and/or a single nonnarcotic, accounted for nearly one-fourth of the clients with a history of intravenous drug use. By the standard CDC definition, these persons would seem to be at added risk for AIDS, despite the fact that they did not have a history of regular opioid abuse.

It is not surprising that the majority of heroin users among TOPS clients reported administering the drug intravenously (table 4). However, more than half of all cocaine users reported that their principal route of administration was intravenous, and one-third of those who abused amphetamines preferred the intravenous route. (Thirty-eight percent of all clients did not use any amphetamines.)

TOPS clients were asked to report the manner in which they most commonly self-administered drugs. If a client reported snorting cocaine most of the time and using it intravenously only occasionally, his intravenous use would not be recorded. Thus, the data presented here are conservative estimates of the prevalence of intravenous drug use. No comparable data are available for AIDS patients.

Table 4 demonstrates the relatively high percentage of clients, irrespective of the specific substance they use, who might be at risk for AIDS, especially if the disease is associated with frequency of the use of needles and the sharing of those needles. Preliminary unpublished estimates from both New York City and New Jersey have indicated that it is a very common practice for intravenous drug users to share needles. In fact, intravenous drug users who do not share needles appear to be the exceptions. In both New York and New Jersey, several clusters of intravenous drug users who share needles have been identified because all or nearly all the members of these isolated clusters have developed either AIDS or its prodrome.

If frequency of drug use and frequency of needle sharing are related to an increased risk of contracting

Table 5. Patterns of intravenous drug use among TOPS clients using heroin or cocaine in the year before their entry into treatment

Pattern	Number	Percent
<i>Heroin</i>		
Less than monthly	2,005	25.1
At least monthly	1,249	15.6
At least weekly	1,156	14.5
At least daily	3,574	44.8
Total	7,984	100.0
<i>Cocaine</i>		
Less than monthly	1,309	24.9
At least monthly	1,767	33.6
At least weekly	1,177	22.4
At least daily	1,000	19.0
Total	5,253	'99.9

¹ Does not add to 100.0 because of rounding.

AIDS, then which drug-abusing populations are at greatest risk? Table 5 provides a view of the patterns of intravenous drug use among persons reporting either heroin or cocaine use. Nearly half of the heroin abusers and one-fifth of the cocaine abusers use their drugs at least daily. While there may be some overlap between these two groups, the numbers who are at risk of being exposed to a contaminated needle are very great.

Until now, questions about the route of self-administration of cocaine have not been a regular part of national household or high school survey data, yet more than half of all cocaine users seeking treatment report some intravenous drug use (19). It is estimated that 19 percent of young adults (age 18–25 years) and 4 percent of older persons have used cocaine at least once, and 11.6 percent of all young adults and 2.8 percent of all older persons have estimated that they have used cocaine

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no fewer than 10 times (12). Through this "casual" drug abuse behavior, a significant portion of the general population may be exposed to the risk of AIDS via contaminated syringes. If this is the case, the dangers associated with cocaine use acquire an additional serious public health dimension.

The National Institute on Drug Abuse estimates that there are at least 350,000–400,000 active intravenous heroin users. No precise estimate of the number of periodic "chippers," or casual users, of heroin is available, but it is thought to be well over a million. No estimates of the numbers of intravenous cocaine and amphetamine abusers are available, but these numbers would appear to be reasonably large.

Considered together, these data suggest that the population at risk of contracting AIDS through intravenous self-administration of drugs may be at least several million people.

Concerns of Drug Abusers about AIDS

It might be asked whether drug abuse clients are aware of AIDS occurring within their communities. A small survey was conducted in August 1983 in New York City by a research group directed by Dr. George DeLeon and his colleagues, Yasser Hijazi and Dr. Harrison Trigg (20). One hundred thirty-two clients in four different treatment programs participated. Eighty (61 percent) of the clients were in residential treatment programs; the remainder were in either a methadone maintenance or a methadone detoxification treatment program. Only two of those interviewed (1.5 percent) had not heard of AIDS. Six additional clients indicated that although they had heard of the disease, they could not recall any specific details about it. Half of these eight persons were less than 17 years of age. The remainder of all the clients interviewed (94 percent) were able to identify one or more facts about the disease. Only four of the clients (3 percent) had first learned about AIDS from the treatment program that they were attending.

Almost all the clients who learned about AIDS while in treatment programs were living in therapeutic communities. Staff of residential treatment programs have more

extensive contact with intravenous drug users than staff of either methadone maintenance or methadone detoxification programs. Staff of residential programs appear more interested in gathering additional information on any condition that might affect the residents of their programs, and ultimately themselves.

One-third of all the clients in this special study indicated that they were personally "very concerned" about AIDS, and an additional one-third indicated that they were personally somewhat concerned about it. Nearly 30 percent indicated that drug abusers were very concerned about AIDS, and an additional 29 percent indicated that drug users on the street were somewhat concerned about it. Clients in residential treatment programs indicated that AIDS had a significant impact on drug users seeking treatment for their drug-related problems. Nearly 20 percent indicated that they perceived a great increase in clinic attendance, while an additional 58 percent indicated that they perceived some increase in clinic attendance. No client felt that fears concerning AIDS infectivity were causing any substantial decrease in clinic attendance.

Only 19 percent of the clients in the methadone programs indicated that the existence of AIDS had influenced many people to stop "shooting up" drugs; however, 59 percent indicated that the existence of AIDS had influenced some people to stop sharing needles. One in six indicated that AIDS had had no effect on the sharing of needles.

Sixteen percent of all the clients interviewed indicated that AIDS had influenced many people who had never used drugs to stay away from drugs. An additional 32 percent felt that AIDS had influenced some (but not many) people who had never used drugs to stay away from drugs.

Treatment Program Staff Concerns

AIDS cases among intravenous drug users are currently estimated at 1 per 1,000; approximately 50 AIDS victims have been identified among about 35,000 drug abuse treatment slots in New York City in the past year (21). (The treatment slot concept is similar to that of the hospital bed—more than a single person will occupy a slot during the course of a year, but only one person occupies a slot at any point in time.)

Drug abuse treatment staff have expressed concerns about the dangers of handling specimens from a population that might be at great risk of developing AIDS. Although the cause of AIDS is not yet known, these treatment personnel must be reminded that they have been handling specimens with a high prevalence of hepatitis B for many years without contracting hepatitis. Historically, the standards of protection have been adequate

when they have been maintained as recommended by State and Federal (CDC) authorities.

A task force at the University of California at San Francisco (UCSF) has developed infection control guidelines for AIDS patients (22). These recommendations are more descriptive than the CDC guidelines but are generally directed to inpatient care settings. The UCSF group, like many other research groups, is operating under the basic assumption that AIDS is transmitted through blood products and body fluids.

There are nearly 200,000 clients in drug abuse treatment programs at any point in time, nearly all of them outpatients or in residential environments; during the course of a year, more than 400,000 distinct treatment episodes occur (23). If exposure of drug abuse program staff to drug abusers were a significant risk, several cases of AIDS should already have occurred among drug treatment personnel. To date, there has not been a case reported.

Educational Programs for Treatment Providers

The vast majority of treatment services provided in drug abuse programs are not provided by physicians or nurses. While program directors may be medically trained personnel who will understand journal articles and scientific presentations on AIDS, the social workers, counselors, and vocational rehabilitation experts who provide the bulk of direct patient care may not. Therefore, presentations on AIDS need to be specifically tailored for these service providers. Adequate time for the presentation and for question-and-answer sessions is vital. Private consultation time with the presenters should be provided, since some persons are sensitive about displaying their ignorance in wording a "dumb" question, and others may have a question about a personal matter that might be too sensitive for public airing.

Educational programs on AIDS for treatment providers have been organized and administered in New York City by the New York State Office of Drug Abuse Services. Treatment program staff have been uniformly appreciative of these presentations. After the initial sessions, followup programs are held. Small group workshops help staff verbalize their concerns about the possibility of contracting AIDS and spreading it to their families and friends. After staff have participated in these education and ventilation sessions, joint staff-patient discussions are often very useful.

Summary

AIDS appears to be spread through exposure to infected blood products and body fluids. Sharing of needles ("works") appears to be the most significant factor

in transmission of AIDS among intravenous drug users, rather than the type of drug administered through that needle, although this may require further study.

There is no evidence that close, nonintimate contact with an AIDS victim results in transmission of the disease. No health care worker has developed AIDS as a result of caring for AIDS patients.

Targeted educational programs and research activities are required for intravenous drug users and the health professionals who care for them. The fears and anxieties of treatment program clients, their families, and treatment staff need to be addressed directly. Specific recommendations that meet the needs of outpatient and residential treatment staff need to be developed.

Drug abuse treatment program staff are known to share foods, beverages, and cigarettes with their clients. While these practices have not been associated with the development of AIDS, they should be discouraged until the exact mechanism(s) of AIDS transmissions are better defined. Those treatment staff who handle blood or other body fluids should continue to use the CDC infectious disease precautions that have been in use for years. The original precautions were established (and have proved adequate) to protect clinical staff from hepatitis.

Education of drug users with regard to general preventive measures is important. Special attention needs to be directed to those intravenous drug users who do not own their own "works" or who share their works with other drug users. Needle-sharing should be actively discouraged.

Although drug abusers and personnel who provide direct services to them have received little media attention and—until very recently—no significant amount of research interest, this trend is changing. As public information campaigns directed to changing the sexual practices of very sexually active homosexuals become more effective, it is quite possible that an increasing proportion of new cases of AIDS will emanate from the drug-using community. Education measures are required immediately. Drug users, their families, their friends, and those who provide treatment services need to know more about AIDS, its etiology, the mode(s) by which it is spread, and methods for limiting exposure.

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Changes in Rates of Spontaneous Fetal Deaths Reported in Upstate New York Vital Records by Gestational Age, 1968–78

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Tearsheet requests to Mr. Cross, a research scientist in the Bureau of Maternal and Child Health, New York State Department of Health, Albany, N.Y. 12237. At the time of the study, he was with the Birth Defects Institute, Division of Laboratories and Research, New York State Department of Health. Dr. Ernest B. Hook, chief of the Birth Defects Section, Bureau of Maternal and Child Health, alerted Mr. Cross to the need for the amendments noted in the addendum.

Synopsis

Between 1968 and 1978, the rates for spontaneous deaths, recorded on Upstate New York fetal death certificates, that occurred after 28 or more weeks of gestation dropped 37 percent, and the rates for deaths that occurred at 20 to 27 completed weeks of gestation dropped 12 percent. However, the rates of reported spontaneous fetal deaths after 16 to 19 weeks gestation dropped only 4 percent. The rates for such deaths at 12–15 weeks of gestation increased by 21 percent and by 55 percent at less than 12 weeks of gestation. The decline in the late fetal death rate is probably attributable, at least in part, to medical and social advances during this period. The reported rise in early fetal deaths may be due, among other factors, to changes in reporting practices or to earlier deaths of conceptuses that formerly would have been lost after 20 weeks of gestation.